

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 030202WO	FOR FURTHER ACTION	
International application No. PCT/US2004/018993	International filing date (day/month/year) 15/06/2004	(Earliest) Priority Date (day/month/year) 23/06/2003
Applicant QUALCOMM INCORPORATED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. Certain claims were found unsearchable (See Box II).

3. Unity of invention is lacking (see Box III).

4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 3

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/018993A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04Q7/38 H04J11/00 H04B1/707

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04Q H04J H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	US 2003/114162 A1 (WANG YIPING ET AL) 19 June 2003 (2003-06-19) paragraphs '0009! - '0015!, '0061! - '0072! -----	1-28
A	EP 1 035 676 A (LUCENT TECHNOLOGIES INC) 13 September 2000 (2000-09-13) paragraphs '0065!, '0066! -----	1-28
A	US 6 335 922 B1 (LIN YU-CHUAN ET AL) 1 January 2002 (2002-01-01) column 4, line 39 - column 5, line 38 column 7, line 55 - column 8, line 35 -----	1-28
A	WO 00/42723 A (MOTOROLA INC) 20 July 2000 (2000-07-20) page 4, line 34 - page 5, line 33 page 6, lines 2-33 -----	1-28
		-/-

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority, claiming or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document which may throw doubts on priority, claiming or which is cited to establish the publication date of another citation or other special reason (as specified); the document cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *g* document member of the same patent family

Date of the actual completion of the international search

26 October 2004

Date of mailing of the international search report

09/11/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentstaan 2
NL - 2280 HV Rijswijk
Tel: (+31-70) 340-2040, Tx 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Mele, M

1

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/018993

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 061 680 A (CIT ALCATEL) 20 December 2000 (2000-12-20) paragraphs '0010! - '0026!	1-28

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/018993

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2003114162	A1	19-06-2003	BR	0209762 A	15-06-2004	
			EP	1397929 A2	17-03-2004	
			WO	03009576 A2	30-01-2003	
EP 1035676	A	13-09-2000	EP	1035676 A1	13-09-2000	
			AU	2816000 A	28-09-2000	
			WO	0054444 A1	14-09-2000	
			JP	3559765 B2	02-09-2004	
			JP	2002539676 T	19-11-2002	
US 6335922	B1	01-01-2002	AU	6276298 A	26-08-1998	
			BR	9806115 A	31-08-1999	
			CA	2251397 A1	13-08-1998	
			EP	0897644 A2	24-02-1999	
			IL	126538 A	10-04-2003	
			JP	2000509942 T	02-08-2000	
			TW	444453 B	01-07-2001	
			WO	9835514 A2	13-08-1998	
			US	2002012332 A1	31-01-2002	
			ZA	9800988 A	03-08-1999	
WO 0042723	A	20-07-2000	US	6091757 A	18-07-2000	
			BR	9916802 A	26-03-2002	
			EP	1145466 A1	17-10-2001	
			JP	2002535875 T	22-10-2002	
			WO	0042723 A1	20-07-2000	
EP 1061680	A	20-12-2000	EP	1061680 A1	20-12-2000	
			CN	1278698 A	03-01-2001	
			DE	69900636 D1	31-01-2002	
			DE	69900636 T2	12-09-2002	
			ES	2167990 T3	16-05-2002	
			JP	2001036503 A	09-02-2001	
			US	6717932 B1	06-04-2004	

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Applicant's or agent's file reference
see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

FOR FURTHER ACTION

See paragraph 2 below

International application No. PCT/US2004/018993	International filing date (day/month/year) 15.06.2004	Priority date (day/month/year) 23.06.2003
--	--	--

International Patent Classification (IPC) or both national classification and IPC
H04Q7/38, H04J11/00, H04B1/707

Applicant
QUALCOMM INCORPORATED

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80239 Munich
Tel. +49 89 2399 - 0 Tx. 523656 epmu d
Fax. +49 89 2399 - 4466

Authorized Officer

Mele, M

Telephone No. +49 89 2399-7994



WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2004/018993

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nuucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material:
 - in written format
 - in computer readable form
 - c. time of filing/furnishing:
 - contained in the international application as filed.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2004/018993

Box No. II Priority

1. The following document has not been furnished:
 - copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).
 - translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.
2. This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2004/018993

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

the entire international application,
 claims Nos. 18-28

because:

the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):
 the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 18-28 are so unclear that no meaningful opinion could be formed (specify):

see separate sheet

the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
 no international search report has been established for the whole application or for said claims Nos.
 the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

has not been furnished
 does not comply with the standard

the computer readable form

has not been furnished
 does not comply with the standard

the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.

See separate sheet for further details

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2004/018993

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-17
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-17
Industrial applicability (IA)	Yes: Claims	1-17
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item I

Basis of the opinion

Reference is made to the following documents:

D1: US 2003/0114162 A

D2: EP 1 035 676 A1

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. **Claim 18** has been drafted as an independent claim but presents an overlapping subject-matter with respect to **Claims 6 and 17** and for these reasons a clarity objection has been raised (see point 11. below). However, it could be considered that also a formal non-unity objection should be raised if this clarity objection were not dealt with, since **Claim 18** neither applies the condition $k < n$ of **Claims 6 and 17**, nor relates to the encoding and spreading operation of **Claims 6 and 17**, but merely concerns a particular assignment of codes to subscriber stations based on features other than those included in **Claims 6 and 17**. Therefore, no opinion could be given about the novelty and inventive step in respect of **Claims 18 to 28**.

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

2. The present application does not meet the requirements of **Article 33(3) PCT**, because the subject-matter of **Claim 1** does not involve an inventive step for the following reasons.

Document **D1** (see in particular paragraphs [0009]-[0011], [0014], [0015], [0061], [0072]), which is considered to represent the most relevant state of the art, discloses, according to the essential features of **Claim 1** (applying the terminology of present **Claim 1** and the references to **D1**), a method of communications (CDMA, see abstract), comprising:

- dividing a plurality of subscriber stations into a plurality of groups (paragraph [0009]: subscribers are divided among cells and each cell is a plurality of sectors);

- assigning a different plurality of orthogonal codes to each of the groups (paragraphs [0009], [0010]: each sector is assigned a plurality of orthogonal codes);
- encoding communications to one of the subscriber stations in said one of the groups at a data rate (paragraphs [0009], [0061]; within each sector a plurality of mobiles communicate actively with the system by means of uniquely assigned Orthogonal codes, which allow to distinguish mobiles from one another);
- determining whether to spread at least a portion of communications to one of the subscriber stations with one of the orthogonal codes assigned to said one of the groups as a function of the data rate (paragraphs [0061], [0072]).

The subject-matter of **Claim 1** differs from the disclosure of **D1** only in that:

- the number of the orthogonal codes assigned to one of the groups is less than the number of subscriber stations in said one of the groups.

The objective problem addressed by this distinguishing feature would be regarded by the skilled person as the code assignment problem, whereby the number of available codes is limited.

Document **D1** does not explicitly disclose that the number of the orthogonal codes assigned to one of the groups is less than the number of subscriber stations in said one of the groups; however, the skilled person would regard the objective problem addressed by this distinguishing feature as the well known problem of codes shortage. It is in fact evident from paragraphs [0011], [0014] and [0015] that the problem of orthogonal codes assignment should also take into account the limited number of resources, that is the problem also known as "code-shortage" or "code-blocking" (see for instance **D2**, paragraphs [0065], [0066]) which is solved in **D2** with a code reuse technique, thus in a similar way as in **D1**, where it is taught an Orthogonal codes reuse technique.

It follows from this that the skilled person would come in an obvious way to the subject-matter of **Claim 1** either considering the teachings of **D1** alone or in combination with **D2** without exercising an inventive activity, contrary to the provision of Article 33(3) PCT.

3. The same considerations as made in respect of independent **Claim 1** are also valid for independent **Claims 6 and 17** which contain a corresponding feature combination as **Claim 1** in terms of a claim relating to apparatuses (communication stations).

Therefore the subject-matter of **Claims 6 and 17** does not involve an inventive step and thus, they do not satisfy the criterion set forth in **Article 33(3) PCT**.

4. The additional features of dependent **Claims 2 to 5 and 7 to 16** do not add anything of inventive significance to **Claims 1, 6 and 17** respectively because they are either directly derivable from the above-mentioned prior art documents **D1 or D2** (see in particular paragraphs [0065], [0066]) or represent standard practice.

Therefore, the subject-matter of **Claims 2 to 5 and 7 to 16** does not involve an inventive step (**Article 33(3) PCT**).

5. Although no detailed opinion can be given in respect of present **Claims 18 to 28**, the particular details of assignment of codes to subscriber stations by way of matrices are considered to represent general knowledge of a skilled person.

Therefore, the subject-matter of **Claims 18 to 28** does not involve an inventive step (**Article 33(3) PCT**).

6. It is not at present apparent which part of the application could serve as a basis for an inventive subject-matter.

Should the Applicant nevertheless regard some particular matter as meeting the provisions of **Article 33(1) PCT** an independent claim including such matter should be filed. The Applicant should also indicate in the letter of reply the difference of the subject-matter of newly filed claims vis-à-vis the state of the art and the significance thereof.

Re Item VII

Certain defects in the international application (form or content)

7. Any new independent claim should be in the two-part form recommended by **Rule 6.3(b) PCT**, with the features known in combination from **D1** placed in its preamble.

If the Applicant is of the opinion that a two-part form of the claim would be inappropriate he is invited to provide reasons in his reply. In addition, the Applicant should ensure that it is clear from the description which features of the subject-matter of the independent Claims are known from the state of the art.

8. All claims should include reference signs relating to the technical features referred to therein, **Rule 6.2(b) PCT**.
9. The opening part of the description should be modified to bring it into agreement with any amended independent claims, **Rule 5.1(a)(iii) PCT**.
10. In order to meet the requirements of **Rule 5.1(a)(ii) PCT**, the cited documents **D1** and **D2** should be acknowledged and briefly discussed in the opening part of the description.

Re Item VIII

Certain observations on the international application (clarity)

11. Although **Claims 6 and 17** have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter (particularly: Claim 6 uses defines the subject-matter in terms of "a processor configured to...", and "an encoder configured to..", while Claim 17 defines the subject-matter in terms of "means for..."). The aforementioned claims therefore lack conciseness and as such do not meet the requirements of **Article 6 PCT**.
12. **Claim 18** has been drafted as an independent claim, although it appears to comprise an overlapping feature combination with respect to **Claims 6 and 17** and to differ therefrom only in features that should be included in a claim dependent thereto, as Claim 18 appears to relate merely to further details of implementation of the "means for assigning" in the communications station. The aforementioned **Claim 18** therefore lacks conciseness and consequently it lacks clarity.

Hence, **Claim 18** do not meet the requirements of **Article 6 PCT**.

13. Furthermore, the application does not meet the requirements of **Article 6 PCT**, because **Claims 1, 6 and 17** are not clear for the following reason.

The formulation of **Claim 1** comprises:

a method of communications comprising the step of:

- determining whether to spread at least a portion of communications to said one of the subscriber stations with one of the orthogonal codes assigned to said one of the groups as a function of the data-rate:-

It is not clear how exactly this determination is made and whether the sentence "a portion of communications" should be interpreted as "a part of the plurality of communications is spread" or "each of the plurality of communications is partially spread".

The same considerations as made in respect of independent **Claim 1** are also valid for independent **Claims 6 and 17** which contain a similar feature combination as **Claim 1** in terms of a claim relating to apparatuses (communication stations).

Therefore, the subject-matter of independent **Claims 1, 6 and 17** is not clear and does not satisfy the criterion set forth in **Article 6 PCT**.

14. The vague and imprecise statement in the description on page 24, paragraph [0065] implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (**Article 6 PCT**) when used to interpret them (see also the **PCT Guidelines**, 5.30).

Therefore, the expression "spirit or" should be deleted to remove this inconsistency.